

I am enabled to bring this bird to the notice of ornithologists; and in my large work on the Birds of North America, now publishing, I propose to give a life-size portrait of this species.

In bestowing on this owl the name which I trust it is ever destined to bear, I simply express the desire which I am sure is felt by all ornithologists, to render honor to him who, combining the intrepidity of the explorer with the enthusiasm of the naturalist, twice penetrated the forbidding, cheerless districts of the far north, in order to extend the knowledge of his favorite science; and who perished in his early manhood, in the full tide of his usefulness, on the banks of the Yukon.

Ornithology has met no greater loss, in these later days, than in the death of Robert Kennicott.

A Study of the RAMPHASTIDÆ.

BY JOHN CASSIN.

Having been frequently interested, as well as greatly perplexed with the singularly nearly allied forms in this group, and having recently undertaken to study and label the large collections of the Philadelphia Academy and of the Smithsonian Institution, my memoranda have been readily expanded into this memoir. The collection of the Smithsonian Institution is mainly from Mexico and Central America, and contains numerous specimens of species previously known only as exceedingly rare and valuable. The collection of the Philadelphia Academy is quite extensive, and comprehensive also, containing about five-sixths of all known species, nearly the whole of which were presented by its most munificent and judicious patrons, Dr. Thomas B. Wilson, and Edward Wilson, Esq.

In this group, species do certainly exist which are very nearly related to each other, but I am not without a suspicion that the number has been unnecessarily increased, and that several so-called species should be regarded as varieties only, and in a few instances I doubt whether even that distinction is clearly tenable or permanent. In all cases, however, I give the species as I find them described. The splendid Monograph of this group by Mr. Gould renders the study of these birds comparatively easy; and, in very nearly all species, the figures are of the very first class in accuracy and faithfulness of representation.

I. Genus RAMPHASTOS, Linnæus.

Genus *Ramphastos*, Linn., *Syst. Nat.* i. p. 103 (1758).

Ramphastos, *Aldrovandus*, *Orn.* i. p. 801 (1599).

Ramphastes, *Gesner*, *Icon. Av.* p. 130 (1560).

1. *Ramphastos*.

1. *RAMPHASTOS Toco*, Müller.

Ramphastos Toco, Müll., *Syst. Nat. Supp.* p. 80 (1776).

Ramphastos Toco, Gm., *Syst. Nat.* i. p. 356 (1788).

Ramphastos magnirostris, Swains., *Cab. Cy.* ii. p. 299 (1837).

Ramphastos niveus, Less., *Supp. Oeuv. Buff.*

Ramphastos picatus, Linn., *Syst. Nat.* i. p. 103 (1758)?

LeVaill. *Ois. Par.* pl. 2. *Buff. Pl. Enl.* 82. Gould, *Mon. Ramph.* 1st ed. pl. 6, 2d ed. pl. 1.

This large and well known species is regarded as the type of the genus *Ramphastos* by all modern authors, but as a matter of after as well as antecedent consideration, and especially for strict constructionists (of which I am one), it is worth remembering that, although the genus was established by Linnaeus (or his editor Jussieu) as early as the fourth edition of *Syst. Nat.*, in 1744, this

[Sept.

species seems to have been then quite unknown to him. In the tenth edition (1758), the first species mentioned is *R. piperivorus*, which is now included in the genus *Pteroglossus*; and in the twelfth edition (1766), the first species mentioned is *R. viridis*, also a *Pteroglossus*. This bird does not appear to have ever come under his notice, unless it is *R. picatus* of the tenth edition. The fourth edition of Syst. Nat., in which this name first occurs, was published in Paris, and edited by B. Jussieu (in 1744). The next edition by Linnæus himself is the sixth, in 1748, and this name is given with the orthography as at present,—*Ramphastos* (6th edition Syst. Nat., p. 19, 1748), and as given by Aldrovandus in 1599.

This bird is, however, properly enough regarded as the type of its genus, the name having been first applied to it, and it having been probably the very first species known to naturalists. The bill is described and figured by Belon in 1555. It is more fully described and figured by Conrad Gesner in 1560 (*Icones Avium Omnium*, p. 130), and the present generic name first occurs on the same page: "*Burhynchus* aut *Ramphastes* appellari poterit." Aldrovandus puts it into its present shape: *Ramphastos*, Aldr. Orn. i. p. 801 (1599), and figures quite intelligibly this same species (p. 802), perhaps copying from Gesner, but much enlarging the figure. It was evidently amongst the earliest birds sent to Europe after the discovery of America, and was known by the name of *Ramphastos* at least a century and a half before the time of Linnæus, and is in all characters a typical and representative species of its genus.

Large, bill very large; rich orange, with a large oval spot of black at the tip of the upper mandible, and a transverse band of black at the bases of both mandibles. Throat white, tinged with pale yellow, and in its lower part this white space is generally, but not always edged and tinged with red. (In the next species, *R. albobularis*, the white of the throat is pure, and not tinged with yellow nor edged with red.) This red color frequently wanting in the female, and occasionally in the male, but the yellow tinge is very nearly always present.

Upper tail coverts white, under tail coverts scarlet. All other parts of the plumage black, frequently tinged with brown on the head. Legs greenish or bluish-black.

Total length about 22 to 24 inches; wing 10, tail $6\frac{1}{2}$ to 7, bill (chord from angle of mouth to point of upper mandible) $6\frac{1}{2}$ to $8\frac{3}{4}$ inches. Female rather smaller; total length about 20 inches.

Hab.—Northern and central South America, Guiana, Para, Rio Orinoco, Bolivia (Mr. W. Evans), Paraguay (Capt. T. J. Page), Rio La Plata (Dr. W. S. W. Ruschenberger, U. S. N.), "Chiquitos, Bolivia" (label on D'Orbigny's specimen in Mus. Acad.) Spec. in Mus. Acad. Philada. and Mus. Smiths. Washington.

This fine species seems to have a wide range of locality in South America, undoubted specimens being in the Acad. Mus. from Para, in north-eastern Brazil, and from the Rio La Plata. It is also in the Mus. Smiths., in a very interesting collection from Bolivia presented by Mr. W. Evans, and in the collection made during the exploration and survey of the Rio La Plata and Rio Parana, by Capt. T. J. Page, late of the U. S. Navy. Specimens from the Rio La Plata in the Acad. Mus. were collected and presented by its distinguished and ever faithful member, Dr. W. S. W. Ruschenberger, of the U. S. Navy, and the locality is undoubtedly authentic.

The larger size, especially of the bill, yellow tinge of the white space on the throat and red edgings in the lower part of the same white space, distinguish this species from the next succeeding,—*R. albobularis*. The yellow tinge is present in all specimens that I have seen, though frequently very slight; but in some females the red edgings are wanting entirely.

This species is very probably *Ramphastos picatus*, Linn., Syst. Nat., 10th edition (1758), but he cites as a synonyme Albin, Av. ii. pl. 25, which is apparently a fictitious species, like a *Pteroglossus*. The description applies to the present bird.

2. RAMPHASTOS ALBOGULARIS, Cabanis.

Ramphastos albobularis, Cab., Jour. Orn. 1862, p. 334.

Very similar to the preceding, *R. Toco*, but smaller, and with the white space on the throat and neck in front pure, and without yellow tinge or red edgings in its lower part.

1867.]

Transverse band of black at the base of the bill narrow, and spot of black at the tip of upper mandible much smaller. Colors of plumage as in *R. Toco*.

Total length about 19 to 20 inches; wing $8\frac{3}{4}$, tail 6, bill (chord) 5 inches.

Hab.—Southern Brazil (Cabanis). Spec. in Mus. Acad. Philada.

The throat is pure white in this species, if such it is, and the transverse band at the base of the bill seems to be much narrower than in *R. Toco*. The general size is smaller, and the bill much shorter. Probably only to be distinguished from the female of *R. Toco* by the presence or absence of the yellow tinge of the white of the throat, always present in *R. Toco*, always absent in *R. albogularis*. The red edgings and tinge of the white throat are not reliable as a character, being frequently absent in *R. Toco*, but ought to be always so, according to Dr. Cabanis' description, in *R. albogularis*. I suspect that this bird is the young female of *R. Toco*, so far as I can judge from one specimen only in the Acad. Mus., without label, stating locality.

2. *Burhynchus*.

3. *RAMPHASTOS CARINATUS*, Swainson.

Ramphastos carinatus, Swains. Zool. III. i. p. (1821).

Ramphastos Tucanus, Shaw, Gen. Zool. viii. p. 362 (1811, nec Linn.)

Ramphastos sulfuratus, Less., Tr. Orn. i. p. 173 (1831).

Ramphastos callorhynchus, Wagl., Syst. Av. (1827).

Ramphastos pæcilorhynchus, Licht.

Ramphastos piscivorus, Linn., Syst. Nat. i. p. 151 (1766)?

Edwards, Birds, vii. pl. 329. Swains. Zool. III. i. pl. 45. Gould, Mon. Ramph. 1st ed. pl. 7, 2d ed. pl. 2. Edwards, Birds, ii. pl. 64?

This large and very handsome species is well known as a bird of Mexico, and in the United States specimens were first introduced in sufficient numbers to supply all museums by Mr. Rafael Montes D'Oea, who obtained them at Jalapa. It stood isolated, and especially characterized by the colors of the bill, until a near relative, *R. brevicarinatus*, was described by Mr. Gould in 1854, and in 1862 another near relative, *R. approximans*, was described by Dr. Cabanis. These species, or supposed species, are very nearly related to each other, and although I have before me no less than thirty-two specimens, certainly representing all three of them, from the Academy and Smithsonian collections, I acknowledge myself quite perplexed in attempting to distinguish satisfactorily between them. At present, I can regard *R. carinatus* and *R. approximans* as differing only in the width of the scarlet band on the lower edge of the yellow space on the throat, and *R. approximans* and *R. brevicarinatus* as differing only in size. There are, however, specimens before me which I cannot clearly refer to either of the three species, though very probably one or the other, and I find it quite impossible to ascertain different geographical districts of locality. In fact, so far as can be determined from specimens before me, evidently very carefully labelled, these species inhabit very nearly the same countries and districts.

Throat yellow. Lower edge of the yellow space of the throat with a *very narrow and frequently obscure band of scarlet* separating it from the black of the under parts of the body. Bill green, tipped with red, and a large obovate spot of orange near the base of the upper mandible, and an orange line on the culmen. At base of bill a narrow transverse band of black.

Upper tail coverts white, under tail coverts scarlet. All other parts of the plumage black, with a strong tinge of reddish-brown on the top of the head and neck behind. Legs bluish-black.

Total length about 22 to 24 inches; wing $8\frac{1}{2}$, tail 7, bill (chord) $5\frac{1}{2}$ to 6 inches.

Hab.—Mexico, Jalapa (Mr. D'Oea), Mirador, Vera Cruz (Dr. C. Sartorius), Potrero, Cordova (Prof. F. Sumichrast), Vera Paz (Mr. O. Salvin), Coban, Guatemala (Mr. H. Hague), Belize, Honduras (Mr. C. J. Wood). Spec. in Mus. Acad. Philada. and Mus. Smiths. Washington.

The band of scarlet on the lower edge of the yellow space of the throat is very narrow in this species, and frequently not to be seen without examination, but in fourteen specimens now under examination, it is present, and can be

[Sept.

traced in all of them. Specimens of this fine species are in the Smiths. Mus. from Mexico and Central America, as above given, and in Acad. Mus. from Mexico.

4. RAMPHASTOS APPROXIMANS, Cabanis.

Ramphastos approximans, Cab., Jour. Orn. 1862, p. 333.

Like the preceding, but with the scarlet band on the lower edge of the yellow space of the throat *conspicuous and much wider*. About the size of the preceding, bill large. Colors of bill and of plumage as in the preceding, *R. carinatus*. "Iris yellow" (Mr. J. Carmiol).

Total length about 21 to 24 inches. Female smaller; total length about 20 inches.

Hab.—Costa Rica, Dota, Grecia, Angostura, San Carlos (Mr. J. Carmiol), San Jose (Dr. A. von Frantzius), Nicaragua, San Juan (Mr. De Bareuil), New Grenada, Panama (Mr. J. McLeannan). Spec. in Mus. Smiths. Washington, and Mus. Acad. Philada.

About the size of the preceding, and with the bill fully as large. Only to be distinguished from that species,—*R. carinatus*,—by the wide and conspicuous scarlet band as above described. Thirteen specimens in the Smithsonian collections from Costa Rica, and one specimen from Panama, are clearly this species. Others in Acad. Mus., from San Juan de Nicaragua, are also certainly this species, and just as certainly correct in locality.

Only differing in size from the next succeeding, *R. brevicarinatus*, both having the wide pectoral band of scarlet. It is possible that the yellow of the throat in *R. brevicarinatus* is darker, or with a tinge of orange, but at present I could distinguish between the female of one and the male of the other, with difficulty, if at all!

5. RAMPHASTOS BREVICARINATUS, Gould.

Ramphastos brevicarinatus, Gould, Monog. Ramph. p. (2d ed. 1854).

Gould, Mon. Ramph. 2d ed. pl. 3.

Much resembling the immediately preceding *R. approximans*, and with the scarlet pectoral band wide and conspicuous, but much smaller, and with the bill shorter. Colors of bill and of plumage as in the two preceding, *R. carinatus* and *R. approximans* (but probably with the yellow of the throat of a darker shade than in either).

Total length about 16 to 17 inches; wing $7\frac{1}{2}$, tail $6\frac{1}{2}$, bill (chord) 4 inches.

Hab.—Costa Rica, Chiriqui (Dr. John Evans), "western side of Isthmus of Panama" (Mr. John Gould), "Mexique" (Massena Coll.) Spec. in Mus. Acad. Philadelphia.

In one very fine adult specimen of this species the yellow of the throat is of a darker and richer shade, than in any specimen of either of the two preceding species. This specimen came in a very interesting collection presented to the Academy by Dr. John Evans, and collected by him at Chiriqui, Eastern Costa Rica, thereby confusing somewhat the idea of this species being of the western coast, exclusively. The type of Mr. Gould is also in Acad. Mus. but bears no label stating locality.

6. RAMPHASTOS TOCARD, Vieillot.

Ramphastos Tocard, Vieill. Nouv. Dict. xxxiv. p. 281, (1819).

Ramphastos engnathos, Wagl. Syst. Av. Add. (1827).

Ramphastos Swainsonii, Gould, Proc. Zool. Soc. London, 1853, p. 69.

Gould, Mon. Ramph. 2d ed. pl. 4, 1st ed. pl. 8, upper fig. LeVaill, Ois. Par. pl. 9?

Colors of the upper mandible divided by a diagonal line from near the nostril to the edge, within the terminal one-third of its length. Upper portion yellow, lower portion dark reddish-chestnut, lower mandible dark reddish-chestnut, terminal one-third, black. Throat yellow, with a transverse band of white and another of scarlet on its lower edge.

Upper tail coverts white, lower tail coverts scarlet. All other parts of the plumage black; top of the head and neck behind tinged with reddish-brown or *maron*. Legs bluish-brown. Young. Upper mandible entirely greenish-yellow, mottled with black at base. Plumage as in adult.

Total length about 22 to 24 inches; wing $9\frac{1}{2}$, tail $6\frac{1}{2}$ to 7, bill (chord) $6\frac{1}{2}$ inches.

Hab.—Costa Rica, Angostura, San Carlos, Turrialba (Mr. J. Carmiol), New Grenada, Rio Nereua (Capt. N. Michler), "Columbie" (Mr. J. Verreaux). Spec. in Mus. Acad. Philada. and Mus. Smith. Washington.

This is the first of three species in which the colors of the upper mandible are separated by an oblong or diagonal line from near the nostril to the edge within its terminal one-third. In this species the bill is large and tumid
1867.]

and the upper mandible dark red or reddish chestnut on its lower portion, (in *R. ambiguus* and *R. abbreviatus* this lower portion is black). Abundance of specimens in Smiths. Mus. from localities in Costa Rica, and also from Western New Granada in Capt. Michlers Atrato collection. In Acad. Mus. this species is labelled New Grenada and "Columbie."

7. *RAMPHASTOS AMBIGUUS*, Swainson.

Ramphastos ambiguus, Swains. Zool. Ill. iii. p. (1823).

Gould, Mon. Ramph. 2d ed. pl. 5, 1st ed. pl. 8, lower fig. Swains. Zool. Ill. iii. pl. 168.

Resembling the preceding, *R. Tocard*, and with the colors of the upper mandible divided in the same manner, but with the lower portion of the upper mandible and the lower mandible black. Colors of plumage as in that species,—*R. Tocard*,—but size rather smaller.

Total length about 20 to 22 inches.

Hab.—Northern and western South America, Bogota, Peru (Mr. Gould.) Spec. in Mus. Acad. Philada. and Smiths. Mus. Washington.

Perhaps rather smaller than the preceding, *R. Tocard*, but much resembling it, and the two species have been constantly confounded. The present bird can always be identified by its black and yellow upper mandible (brick red or reddish chestnut and yellow in *R. Tocard*). Specimens in Acad. Mus. are from Bogota and there are very fine specimens also from Bogota in the magnificent collection presented to the Smithsonian Institution by the Hon. A. A. Burton, late Minister of the United States to New Grenada.

8. *RAMPHASTOS ABBREVIATUS*, Cabanis.

Ramphastos abbreviatus, Cab. Jour. Orn. 1862, p. 334.

Resembling *R. ambiguus*, but smaller, and with the red tinge (or "wash") on the head and neck behind, and on the black of the breast, much more distinct. Bill with the colors divided as in the two preceding species, upper portion of upper mandible yellow, lower portion and lower mandible black (as in *R. ambiguus*). Wide pectoral band of scarlet. Colors of plumage as in *R. Tocard* and *R. ambiguus*.

Total length about 18 inches; wing 8½, tail 6, bill 4¼ inches.

Hab.—Venezuela, Caraccas (Mus. Acad.), Porto Cabello (Dr. Cabanis). Spec. in Mus. Acad. Philada.

Our specimen in the Massena collections now in Mus. Acad. is undoubtedly this species, which, in my opinion, is entirely respectable. It is allied to the two preceding species, but is smaller and has the bill especially smaller and not so wide, in the lateral view. The red tinge on the head and breast is much stronger in this specimen, as stated by Dr. Cabanis in his description of this species as above cited.

3. *Tucanus*.

9. *RAMPHASTOS TUCANUS*, Linnaeus.

Ramphastos Tucanus, Linn. Syst. nat. i. p. 103, (1758).

Ramphastos monilis, Müll. Syst. Nat. Supp. p. 83, (1776).

Ramphastos crythrorhynchus, Gm. Syst. Nat. i. p. 355, (1788).

Ramphastos Le Vaillantii, Wagl. Syst. Av. (1827)?

Ramphastos subfuscatus, Less.

Ramphastos citreopygus, Gould, Mon. Ramph. 1st ed. pl. 2?

Edward's Birds v. pl. 238. Buff. Pl. Enl. 262. Le Vaill. Ois. Par. pl. 3. Gould, Mon. Ramph. 1st ed. pl. 3, 2d ed. pl. 6. Shaw, Nat. Misc. vi. pl. 183. Le Vaill. Ois. Par. pl. 4? Gould, Mon. Ramph. 1st ed. pl. 2?

Throat white, faintly tinged with yellow. Bill crimson, culmen and wide transverse band at base yellow. Upper tail coverts yellow, under tail coverts scarlet, a wide pectoral band of scarlet. All other parts of plumage black. Legs bluish-brown.

Total length about 22 inches; wing 9 to 10, tail 6 to 6½, bill (chord) 6½ to 7 inches.

Hab.—Northern South America, Guiana, Surinam, Northern Brazil. Spec. in Mus. Acad. Philada. and Mus. Smiths. Washington.

This species is undoubtedly the *R. Tucanus* of Linnaeus, as suggested by that great and philosophical naturalist, Mr. Vigors, in Zool. Jour. ii. p. 471. It is an entirely peculiar and in some respects isolated species, strongly characterized by its red bill. Le Vaillant's figure above cited, Ois. Par. pl. 4, is

[Sept.

very probably, this bird, though the pectoral band is given as yellow instead of scarlet. On this figure *R. Le Vaillantii* is founded as above.

In his first edition Monog. Ramph. Mr. Gould describes and figures a bird to which he gives the name *R. citreopygus*, as above. In his second edition, he states that the specimen figured "is made up of the head of *R. vitellinus* and body of *R. erythrorhynchus*."

10. RAMPHASTOS INCA, Gould.

Ramphastos Inca, Gould, Proc. Zool. Soc. London, 1846, p. 68.

Gould Mon. Ramph. 2d ed. pl. 7.

Resembling the preceding, but with the bill black, culmen yellow, and a large somewhat triangular spot of red on each side of the culmen near the base of the bill. A wide transverse band at the base of the bill yellow, with a narrow band of scarlet at its anterior edge. Upper tail coverts rich orange, under tail coverts scarlet, all other parts of plumage black.

Total length about 20 inches.

Hab.—Western South America, Bolivia (Mr. Gould.)

This species is unknown to me, though one specimen in Acad. Mus. seems to approach it, but the upper tail coverts are not so richly colored as in Mr. Gould's figure, though more decidedly orange than in *R. Tucanus*, and the bill being dry and faded long since, does not show the peculiar markings of the present bird. The specimen is rather shorter, and the tail especially so, and the bill larger than in the specimens of that species now under examination. The specimen alluded to is No. 650, and is labelled only "Bresil."

11. RAMPHASTOS CUVIERI, Wagler.

Ramphastos Cuvieri, Wagl. Syst. Av. p. (1827).

Ramphastos Forsterorum, Wagl. Syst. Av. p. (1827) ?

Gould Mon. Ramph. 1st ed. pl. 2, 2d ed. pl. 8. Le Vaill. Ois. Par. pl. 5 ?

Bill black. Resembling both of the preceding in colors of plumage, especially *R. Tucanus*, but with the bill black, culmen and wide transverse band at base of bill yellow. Upper tail coverts orange, under tail coverts scarlet, throat white, faintly tinged with yellow, a wide pectoral band of scarlet; all other parts of the plumage black.

Total length about 22 to 23 inches; wing $9\frac{1}{2}$, tail $6\frac{1}{2}$, bill (chord) $6\frac{1}{2}$ to 7 inches.

Hab.—Northern South America, Rio Amazons. Spec. in Mus. Acad. Philada. and Mus. Smiths. Washington.

Distinguished from *R. Tucanus* by its black bill and orange upper tail coverts and seems to be rather larger. From *R. Inca* this species differs in not having the large spots in the upper mandible nor the scarlet transverse line at the base of the bill. Specimens in Acad. Mus. labelled "Upper Amazon" and other very fine specimens in the Smiths. Mus. from Lieut. Herndon's collections on that river.

The figure in Le Vaill. Ois. Par. pl. 5, may be intended to represent this species, but the throat is orange and the upper tail coverts scarlet. Stated to be from Peru. *R. Forsterorum*, Wagler as above, is founded on this figure.

12. RAMPHASTOS CULMINATUS, Gould.

Ramphastos culminatus, Gould, Proc. Zool. Soc. London, 1833, p. 70.

Gould, Mon. Ramph. 1st ed. pl. i. 2d ed. pl. xi.

Bill black. Resembling *R. Cuvieri*, but smaller, with the bill more compressed, and with the throat pure white. Bill black, with the culmen and wide transverse band at base greenish-yellow. Upper tail coverts orange, under tail coverts scarlet, pectoral band narrower and darker red than in *R. Cuvieri*. All other parts of plumage black. Legs bluish-black.

Total length 19 to 20 inches; wing 8 to $8\frac{1}{2}$, tail $6\frac{1}{2}$ to 7, bill 5 to $5\frac{1}{2}$ inches.

Hab.—Western South America, Peru? (Hon. J. R. Clay), Upper Amazon (Mr. Gould). Spec. in Mus. Acad. Philada.

Very much like *R. Cuvieri* but got up on a smaller scale and clearly distinct. The pure white throat is a peculiar and immediately available character, and the pectoral band is narrow and dark red, quite distinct in shade from that of *R. Cuvieri*. It is an entirely respectable species.

The only specimens of this species that I have seen, are in the fine collection made by the Hon. John Randolph Clay, while minister of the United States to Peru, and are very probably from that country.

1867.]

13. *RAMPHASTOS CITREOLAEMUS*, Gould.

Ramphastos citreolaemus, Gould, Proc. Zool. Soc. London, 1843, p. 147.
Gould, Mon. Ramph. 2d ed. pl. 9. Gray, Gen. B. ii. pl. 100.

Like the preceding and *R. Cuvieri*, but smaller, and with the pale yellow space on the throat nearly encircled with white. Bill black, with the culmen and wide transverse band at base yellowish-green. The yellow on the neck in front clearer defined, and of a darker shade than in either of its preceding allies. Upper tail coverts pale yellow.

A wide pectoral band of scarlet, under tail coverts scarlet, all other parts of the plumage black. Scarlet of the under tail coverts extending upwards, and appearing somewhat in the upper tail coverts (which are yellow). Legs bluish-black.

Total length about 21 inches; wing $8\frac{1}{4}$, tail $7\frac{1}{2}$, bill $5\frac{1}{2}$ inches.

Hab.—Northern South America, Bogota. Spec. in Mus. Acad. Philada.

Smaller than *R. Cuvieri*, but about the size of *R. culminatus*. Differs from the former in having the white space on the throat strongly tinged with yellow in its lower part only, and in having the upper tail coverts pale yellow, (in both *R. Cuvieri* and *R. culminatus* the upper tail coverts are orange). In *R. culminatus* the throat is pure white and scarlet, pectoral band narrow; in this species, *R. citreolaemus*, the white space is strongly tinged with yellow in its lower part and the pectoral band, wide, and of a different shade of scarlet.

The only specimens that I have seen of this species are Mr. Gould's types in the Acad. Mns., both of which were received in the Massena collection, presented to the Academy by Dr. Thomas B. Wilson.

14. *RAMPHASTOS OSCULANS*, Gould.

Ramphastos osculans, Gould, Proc. Zool. Soc. London, 1835, p. 156.
Gould Mon. Ramph. 1st ed. pl. 5, 2d ed. pl. 10.

Very much like the preceding, *R. citreolaemus*, but with the upper tail coverts orange, and the neck in front orange. Bill black, culmen and wide transverse band at base yellowish-green. Plumage of other parts as in *R. citreolaemus*.

Total length about 19 inches.

Hab.—Northern South America, Guiana, Rio Negro (Mr. Gould).

This species I have not seen. Judging from Mr. Gould's description and from his superb figure, it differs from *R. citreolaemus* sufficiently, in the orange of the neck in front, and upper tail coverts as above, (both of which are yellow in *R. citreolaemus*).

4. *Ramphodryas*.15. *RAMPHASTOS ARIEL*, Vigors.

Ramphastos Ariel, Vig., Zool. Jour. ii. p. 466, (1826).

Ramphastos Temminckii, Wagl., Syst. Av. Ramph. No. 10, (1827).

Ramphastos Tucanus, Wagl., Syst. Av. Ramph. No. 11, (1827), nec. Linn.)?

Ramphastos erythrosona, Wagl., Syst. Av. Ramph. No. 9, (1827)?

Ramphastos maximus, Cuv. Reg. An. i. p. 431, (1817)?

Ramphastos flavicollis, Müll. Syst. Nat. Supp. p. 83, (1776)?

Gould, Mon. Ramph. 1st ed. pl. 10, 2d ed. pl. 12. Buff. Pl. Eul. 307? Le Vaill. Ois. Par. pl. 6? Zool. Jour. ii. pl. 15.

Smaller. Bill black, with a wide transverse band of yellow at base, flattened somewhat, and with a wide groove near the culmen. Upper tail coverts scarlet. Throat orange, with a narrow band of pale yellow on its lower edge, which is succeeded by a wide band of scarlet on the breast. Under tail coverts scarlet. All other parts of the plumage black. Legs bluish-black. Throat in some specimens reddish-orange.

Total length about 18 to 21 inches; wing 7 to 8, tail $6\frac{1}{2}$ to 8, bill (chord) 4 to 5 inches.

Hab.—Northern and eastern South America, Bahia, St. Catherine's, San Paulo. Spec. in Mus. Acad. Philada. and Mus. Smiths. Washington.

This is the first of several species in which the upper tail coverts are scarlet. In this species the bill is uniformly clear black, including the culmen, and having only a transverse band, at base, of yellowish white. So far as can be determined from dried specimens the bill in this species is more flattened than usual in this group and with a wide but shallow groove, leaving the culmen very distinct.

The specimens before me from various localities and all of which I regard

[Sept.

as one species, would make about three, with some stretch of propriety. One specimen from St. Catherines, Brazil, is larger than all others: total length 21 inches, wing $8\frac{1}{2}$, tail $7\frac{1}{2}$ inches, but the bill is shorter than others; length (chord) $4\frac{3}{4}$ inches. Two other specimens labelled only "Bresil," have the throat dark reddish orange, (or orange red) much darker red than usual in specimens from Bahia. The largest seems to be that figured and described by Mr. Gould.

It is not to be concluded hastily that the species proposed by Wagler as above are all to go for nothing. Two of them, *R. Tucanus* and *R. erythrosoma*, seem to be founded on figures, and, if said figures are correct, they are valid species. These figures may represent *R. Ariel* with some exaggerations and oversights. Wagler's species are:

1. *Ramphastos Temminckii*, which is *R. Ariel* as above given.
2. *Ramphastos erythrosoma*, founded on Le Vaill. pl. 6, which is much like *R. Ariel*, but has the under parts almost entirely scarlet.
3. *Ramphastos Tucanus*, (Wagl. nec. Linn.) *R. flavicollis*, Müller, founded on Pl. Enl. 307, in which the upper tail coverts are orange, (not scarlet, as in *R. Ariel*) and the pectoral band narrow (it is very wide in *R. Ariel*.)

The following are varieties in the collections now under examination:

- R. Ariel*, a. Throat pale orange. Eastern Brazil, Bahia.
- b. Throat deep reddish orange, bill longer. Northern, Amazon River.
- c. Large, bill shorter, throat pale orange. Southern, St. Catherines, Rio de Janeiro.

16. RAMPHASTOS VITELLINUS, Temminck.

Ramphastos vitellinus, Temm., Man. D'Orn. i. p. 76, (1820.)

Gould, Mon. Ramph. 1st ed. pl. 9, 2d ed. pl. 13. Le Vaill. Ois. Par. pl. 7. Swains', Zool. Ill. i. pl. 56.

Bill black, upper tail coverts scarlet, large space on the throat orange in the middle and lower part, fading into pure white on its edges, throat, and sides of the neck. Wide pectoral band and under tail coverts scarlet. All other parts of the plumage black, legs bluish-black. Bill black, with a transverse band of pale blue at base, flattened and grooved near the culmen.

Total length about 19 to 20 inches; wing $7\frac{1}{2}$ to 8, tail $6\frac{1}{2}$ to 7, bill $4\frac{1}{2}$ to 5 inches.

Hab.—Northern South America, Guiana, Cayenne, Northern Brazil. Spec. in Mus. Acad. Philada. and Mus. Smiths. Washington.

In all American collections, and not difficult to distinguish from any other species. The bill is entirely black, including the culmen, but having a wide transverse band of pale blue at base.

5. *Tucanius*.

17. RAMPHASTOS DICOLORUS, Linnaeus.

Ramphastos dicolorus, Linn. Syst. Nat. i. p. 152, (1766).

Ramphastos chlororhynchus, Temm. Man. d'Orn, i. p. 76, (1820).

Ramphastos pectoralis, Shaw, Gen. Zool. viii. p. 365, (1811).

Ramphastos Tucai, Licht. Verz. p. 7, (1823).

Buff. Pl. Enl. 269. Le Vaill. Ois. Par. pl. 8. Swains. Zool. Ill. ii. pl. 108. Jard. & Selby, Ill. i. pl. 29. Gould Mon. Ramph. 1st ed. pl. xi. 2d ed. xiv.

Bill green, with a transverse band of black at base. Entire under parts of body scarlet, with a transverse band of black on the abdomen; tibiae black. Upper and under tail coverts scarlet. Large space on the throat, orange in the middle and fading into pale yellow on its edges, throat, and sides of the neck. All other parts of the plumage black. Legs brownish-black. Bill flattened and grooved near the culmen.

Total length about 17 to 20 inches; wing $7\frac{1}{2}$ to 8, tail $6\frac{1}{2}$ to 7, bill $3\frac{1}{4}$ to 4 inches.

Hab.—Central and eastern South America, Brazil, St. Catherines, Rio de Janeiro, San Paulo, Paraguay. Spec. in Mus. Acad. Philada. and Mus. Smiths. Washington.

This abundant and handsome species differs from all others of this genus, in having the bill green and the under parts almost entirely scarlet, the tibiae and a narrow belt on the abdomen being black. It is in all American collections.

II. Genus PTEROGLOSSUS, Illiger.

Genus Pteroglossus, Ill. Prodr. p. 202 (1811).

1. *Pteroglossus*.

1. PTEROGLOSSUS ARACARI, (Linnæus).

Ramphastos Aracari, Linn. Syst. Nat. i. p. 104, (1758).

Ramphastos atricollis, Müll. Syst. Nat. Snpp. p. 83, (1776).

Gould, Monog. Ramph. 1st ed. pl. 12, 2d ed. pl. 15. Buff. Pl. Enl. 166. Shaw, Nat. Misc. pl. 198. Le Vaill. Ois. Par. pl. 10, 12.

Adult ♂. With one wide, well defined band of scarlet on the abdomen. Entire head and neck glossy black; back, wings and tail fine dark green; under parts of body greenish-yellow (except the wide band of scarlet across the abdomen). Tibiæ olive-green, mixed with reddish; rump scarlet. Bill with the upper mandible yellowish-white, (or straw color) and a wide longitudinal band of black on the culmen; under mandible black; at the base of both mandibles, and completely enclosing the bill, a raised band of straw-yellow. Legs greenish. Frequently an obscure spot of dark chestnut on the ear, and usually an obscure and imperfect narrow band of scarlet between the black and yellow on the neck or breast.

Total length about 18 or 19 inches; wing 6, tail $7\frac{1}{2}$, bill (chord) $4\frac{1}{2}$ to 5 inches.

Hab.—North-eastern South America, Guiana, Northern Brazil. Spec. in Mus. Acad. Philada. and Mus. Smiths, Washington.

This might erroneously be supposed to be a common and well known species, but between *P. formosus* on one side, which is larger, and *P. Wiedii* on the other, which is smaller, but both otherwise very similar, it is not entirely easy to fix its identity, nor to ascertain which of the three was originally described. At present I rely on the plate and description of Mr. Gould.

The wide band or stripe on the culmen is the only remaining hope for this species, this stripe being narrow (or not so wide!) in both of its aspiring relatives, now about to be brought forward. It does appear, though, that the tibiæ are more mixed with red than in either *P. formosus* or *P. Wiedii*, and other small points of difference can be developed by the diligent and patient student.

2. PTEROGLOSSUS WIEDII, Sturm.

Pteroglossus Wiedii, Sturm, ed. Gould's Ramphast. p.

Sturm, ed. Gould's Monog. pl. Gould, Monog. 2d ed. pl. 16.

Much resembling the preceding, but smaller, with the bill shorter and less curved, and the longitudinal stripe on the culmen much narrower. Tibiæ more clearly dark green; breast with little or no mixture of scarlet.

Total length about 17 or 18 inches; wing $5\frac{1}{2}$ to $5\frac{3}{4}$, tail $6\frac{1}{2}$ to 7, bill (chord) 4 to $4\frac{1}{2}$ inches.

Young male Throat and sides of the neck with a decided tinge of dark chestnut; other parts as in adult.

Hab.—Central and eastern South America, Bahia, Rio de Janeiro. Spec. in Mus. Acad. Philada.

Smaller than the preceding, with the longitudinal stripe on the culmen narrow. Inhabits more southern districts of South America.

3. PTEROGLOSSUS FORMOSUS, Cabanis.

Pteroglossus formosus, Cab. Jour. Orn. 1862, p. 332.

Much resembling both of the preceding, but larger than either. Stripe on the culmen narrow, as in *P. Wiedii*. Yellow plumage of the breast mixed with red, as in *P. Aracari*. Tibiæ green, as in *P. Wiedii*. Bill long, strongly curved at the end (perhaps more slender than in either of the preceding).

Total length about 19 or 20 inches; bill (chord) $5\frac{1}{2}$ inches.

Hab.—Northern South America, "Venezuela" (Cabanis). Spec. in Mus. Acad. Philada.

Young. This species? Bill thick, much shorter than in adult, cutting edge of upper mandible integral, smooth (not serrated as in adult). Entire head dull brown or snuff color, darker on the crown; upper part of back, wings and tail dark green; under parts of body dull and pale greenish-yellow; wide band across the abdomen dull yellowish-red. Bill nearly uniform greenish-yellow, darker on the under mandible, lighter at the tip. Yellow of the breast mixed with pale reddish.

Total length about 14 inches.

This is a large species like *P. Aracari*, but with the longitudinal stripe on the culmen narrow as in *P. Wiedii*. One specimen in the Acad. Mus. is this bird. It is labelled "Demarara" in a hand writing that I do not recognise.

[Sept.

4. PTEROGLOSSUS PLURICINCTUS, Gould.

Pteroglossus pluricinctus, Gould Proc. Zool. Soc. London, 1835, p. 157.
Gould, Monogr. Ramph. 1st ed. pl. 15, 2d ed. pl. 17.

About the size of *P. Araçari*, or rather larger. With *two* bands on the under parts of the body; one is black across the breast, the other is mixed black and scarlet across the abdomen. Head and neck black, with a rich bluish lustre; back, wings and tail dark green; rump scarlet. Under parts of body (except the bands) fine greenish-yellow or straw-color, much mixed with scarlet; lower band almost entirely scarlet and expanded on the sides; tibiae greenish-chestnut.

Upper mandible rich yellow, nearly orange on the basal half of the bill, a wide stripe of brownish-black on the culmen, under mandible brownish-black, bill enclosed at base by a raised line of yellow. Female and young male with the cars fine chestnut.

Total length about 18 to 20 inches; wing 6 to 6½, tail 7, bill (chord, from corner of mouth direct to point) 4 to 4½ inches. "Iris yellow" (Lieut. Herndon, in Smiths. Mus.)

Hab.—Northern South America, "Rio Negro," "Rio Orenoque" (Acad. Mus.), "Petas, Amazon River" (Lieut. Herndon). Spec. in Mus. Acad. Philada. and Mus. Smiths. Washington.

A beautiful and strongly characterized species, easily distinguished from either of the preceding by its *two* bands on the under parts. It is, however, singularly afflicted with relatives (as follows immediately) and to avoid discouraging entanglements, it is necessary to remember that in this species and the next succeeding only, *P. pœcilsternus*, the upper band (on the breast) is complete and well defined and black. In all others the upper band is imperfect or rudimentary, or not at all.

5. PTEROGLOSSUS PÆCILOSTERNUS, Gould.

Pteroglossus pœcilsternus, Gould, Proc. Zool. Soc. London, 1843, p. 147.
Gould, Monogr. Ramph. 2d ed. pl. 18. Le Vaill. Ois. Parad. pl. 11.

Only differing from the preceding in having the lower band (on the abdomen) nearly fine scarlet, or but slightly mixed with black, and the yellow of the under parts less mixed with scarlet.

Total length 18 to 20 inches.

Hab.—Western South America, Peru. Spec. in Mus. Acad. Philada. and Mus. Smiths. Washington.

This species, if such it is, inhabits a more western range of locality than the next preceding, *P. pluricinctus*, which it exceedingly resembles. One specimen in Smiths. Mus. is in Lieut. Herndon's collection from the Western tributaries of the Rio Amazon. One other in the Acad. Mus. bears Mr. Gould's label, but without locality.

6. PTEROGLOSSUS ERYTHROPYGIUS, Gould.

Pteroglossus erythropygius, Gould, Proc. Zool. Soc. London, 1843, p. 15.
Voy. Sulphur, Birds pl. 28. Gould, Monogr. Ramph. 2d ed. pl. 21 (lower figure).

Under mandible yellow, tipped with black (the under mandible is black in all others of this connection). Upper mandible with a wide longitudinal band parallel with its cutting edge (which the preceding two species have not). Otherwise much resembling *P. pluricinctus* and *pœcilsternus*.

Total length 18 inches (Gould).

Hab.—Realejo, Western Nicaragua (Mr. Gould).

This species I have not seen. It appears to be much like the various allies of *P. pluricinctus*, but has the under mandible yellow in its basal two thirds. Nearly allied also to the next succeeding (*P. sanguineus*) but that species has the under mandible black.

7. PTEROGLOSSUS SANGUINEUS, Gould.

Pteroglossus sanguineus, Gould, Monogr. Ramph. 2d ed. p. (in text of *P. erythropygius*), (1854).

Pteroglossus erythropygius, Cassin, Cat. Michler's collection, Proc. Acad. Philada., 1860, p. 136.

Gould, Monogr. Ramph. 2d ed. pl. 21 (upper figure).

Resembling the immediately preceding, but with the under mandible black (which is yellow in that species—*P. erythropygius*). A longitudinal band of black near the cutting edge of the upper mandible, as in the preceding (but not in any other of the allies of *P.*

1867.]

pluricinctus). Yellow of the under parts much mixed with scarlet. Otherwise much resembling *P. pluricinctus*.

Total length about 18 to 20 inches; wing 6 to 6½, tail 7 inches. Female rather smaller.

Hab.—New Grenada, Rio Trinidad, a tributary of the Rio Atrato. Spec. in Mus. Smiths. Washington, and Mus. Acad. Philada.

Six specimens in Capt. Michler's collection, from the Rio Atrato and its tributaries, are undoubtedly this species, and as distinct as customary in this group from *P. erythroptygus*. It is probably not smaller than that species.

8. PTEROGLOSSUS TORQUATUS, (Gmelin).

Ramphastos torquatus, Gen. Syst. Nat. i. p. 354, (1788).

Pteroglossus ambiguus, Less. Traite. d'Orn. i. p. 178, (1831).

Pteroglossus regalis, Licht.

Ramphastos discolor, Müll. Syst. Nat. Supp. p. 83, (1776).

Tucana mexicana torquata, Briss. Orn. iv. p. 421.

Gould, Monog. Ramph. 1st ed. pl. 14, 2d ed. pl. 20.

Generally resembling the preceding, but rather smaller, and distinguished by a band of chestnut on the neck behind. Upper band (on the breast) nearly obsolete, or represented only by a large black spot on the breast. Yellow of the under parts much mixed with scarlet.

Total length about 17 inches.

Young ♂. Bill with the cutting edges plain, without serratures, and entirely light brown, yellowish on the edges of the upper mandible. Adolescent. Under mandible nearly black; upper mandible orange at base; plumage nearly as in adult, but dull, and abdominal band narrow and imperfect.

Hab.—Central America, Northern South America, Mexico? Spec. in Mus. Acad. Philada. and Mus. Smiths. Washington.

Numerous specimens in Smiths. Mus. from Angostura and Turrialba, Costa Rica, and from Coban and Choctun, Central Guatemala, and in the Acad. Mus. from Chiriqui, Costa Rica, and Veragua, New Grenada, and several specimens labelled "Mexique." One specimen in Acad. Mus. is labelled "Guay-aquil," Ecuador.

This handsome Toucan, was until recently, a highly respectable species, eminently distinguished by its chestnut collar worn on the neck behind; but that character is no longer peculiar, two other species having appeared setting up the same badge of distinction with some propriety. We will proceed to examine their claims without unnecessary delay.

9. PTEROGLOSSUS NUCHALIS, Cabanis.

Pteroglossus nuchalis, Cabanis, Jour. Orn. 1862, p. 332.

Very similar to the preceding,—*P. torquatus*,—and with a chestnut collar on the neck behind. Bill larger, longer, and curved at the end at a wider or more obtuse angle. Black spot on the breast smaller, and yellow of the under parts more mixed with scarlet than in *P. torquatus*.

Total length about 18 inches.

Hab.—"Porto Cabello" (Cabanis). Spec. in Mus. Acad. Philada.

This species, if so, can be recognized mainly by its larger and longer bill, gradually curved and not so decidedly nor abruptly hooked at the end as in *P. torquatus*. The under parts in the specimen before me are more mixed or spotted with scarlet than in either of ten specimens of that species (*P. torquatus*) in the Acad. and Smiths. collections, and at the termination of the black on the neck in front there is a band of bright scarlet, narrower, but more complete than in either of them. It may be only a full plumaged or older specimen of that species!

The only specimen in Acad. Mus. is labelled "*Pteroglossus regalis*, ♂ ? Mexique," in a handwriting that I do not recognise.

10. PTEROGLOSSUS FRANTZII, Cabanis.

Pteroglossus Frantzii, Cab. Sitz. Bericht Naturf. Berlin, 1861. Jour. Orn. 1862, p. 332.

Like *P. torquatus* and *P. nuchalis*, and about the same size or rather larger, but with the abdominal band very wide and nearly pure scarlet. Upper mandible yellow, except the usual stripe on the culmen, which is black, and a space of dark greenish at base (yellow at the tip, which is black in *P. torquatus* and *P. nuchalis*). Chestnut-colored collar on the neck

[Sept.

behind darker, and perhaps more narrow than in those species. Bill larger and wider than in *P. torquatus*, but not so long as in *P. nuchalis*, and with the teeth smaller than in either. In other characters much resembling these and other allies of *P. pluricinctus*.

Total length about 18 to 19 inches; wing 6 to 6½, tail 6½ to 7, bill (chord of upper mandible) 4 inches.

Young. Bill with the cutting edge of upper mandible smooth (not serrated, as in the adult), entirely dull brown. Head dark brown; abdominal band yellowish-scarlet. General colors as in adult.

Hab.—Costa Rica, "San Jose," "Angostura," "Chiriqui." Spec. in Mus. Smiths. Washington, and Mus. Acad. Philada.

This species is of the same general style and colors as the two preceding, and has a well defined nuchal collar, but is easily to be recognized by its wide and clear scarlet abdominal band, and yellow pointed upper mandible. The abdominal band is more than double the width of that of either *P. torquatus* or *P. nuchalis*, and seems to afford a character entirely reliable in determining this species.

Specimens in the Smiths. Mus. are from the large and very interesting collections of Mr. Julian Carmiol, made at various localities in the Republic of Costa Rica as above cited.

11. PTEROGLOSSUS CASTANOTIS, Gould.

Pteroglossus castanotis, Gould, Proc. Zool. Soc. London, 1833, p. 119.

Gould, Monogr. Ramph. 1st ed. pl. 13, 2d ed. pl. 19.

This is one of the strongly marked species of this sub-group, and (in a sort of aggregate) is not difficult to recognize, a large space on the sides of the neck, continuing into a wide collar on the neck behind, being rich dark chestnut. In all specimens before me the neck in front is chestnut also, but this space differs in extent, and may give place to black. In two specimens the throat, immediately at the base of the under mandible and within its fork, is black, in others it is chestnut. One band only on the abdomen, which is wide and well defined, and bright scarlet.

Entire justice has not been done to this species, regarding as praiseworthy example the treatment of *P. aŕacari*, *P. pluricinctus*, and *P. torquatus*. Like them, it heads a group of allies and affinities which seem to inhabit different localities; and in the specimens now before me I think I could set up a species or two, as customs seem to prevail in this group. But having got through the almost inextricable tangle of the preceding ten species, after a fashion, I am quite demoralized, and very sure that no living man can remember the species already described in this group, unless, like the gay young gentleman who tied his cravat with such wonderful success, he gives his whole mind to it.

Adult ♂. Sides of the neck rich dark chestnut, which color continues into a wide, well defined band on the neck behind; frequently, neck in front also chestnut. Head above, and throat black, especially near the commencement of the yellow of the under parts (but above frequently chestnut). Back, wings and tail dark green. Rump scarlet; a wide band on the abdomen scarlet; other under parts pale greenish-yellow, mixed with scarlet on the breast and under tail coverts. Tibiæ dark chestnut, frequently mixed with green. Upper mandible yellow, with a wide band of black on the culmen in its basal three fourths, and another at its base and near its cutting edge, of nearly the same length. Under mandible black. Legs dark colored. ♀. Like the male, but with the chestnut of the head more extended.

Total length about 17 to 22 inches; wing 6 to 7, tail 5½ to 7, bill (chord) 3½ to 5½ inches.

Hab.—Northern and western South America, Rio Amazon (Lieut. Herndon), Para (Imp. Mus. Rio de Janeiro), Peru (Mr. Gould).

This fine species is strongly characterized by the chestnut color of the neck, throat and cheeks, but this color seems to be variable in extent, and in some specimens now before me extends to the top of the head. The size of specimens is also quite different, the smallest in the present collection being in Capt. Page's collection from the Rio Parana, and labelled "Brazil,"—undoubtedly correct, and showing the most southern locality yet ascertained for this species. These are both sexes in mature plumage, and so much smaller than specimens from the Rio Amazon that they would easily make a species in this group. Another specimen in the Acad. Mus., labelled ♀, has the head
1867.]

entirely chestnut, with only frontal and superciliary stripes black. Three varieties of this species may be distinguished :

- P. castanotis*, a, *castanotis*.—Larger ; head above black ; total length about 20 to 22 inches. Northern, Rio Amazon, Peru.
 b, *australis*.—Smaller ; head above brownish-black ; total length about 16 to 17 inches. Southern, Rio Parana.
 c Entire head chestnut, with a frontal band and superciliary stripes black. Locality unknown. Perhaps young female of var. *castanotis*.

2. *Grammarhynchus*.

Genus *Grammarhynchus*, Gould, Monogr. Ramph. Intr. p. 26 (2d ed., 1854).

12. PTEROGLOSSUS INSCRIPTIS, Swainson.

Pteroglossus inscriptis, Swains. Zool. Ill. ii. p. (1820).

Pteroglossus scriptus, Temm. Man. d'Orn, i. p. 76 (1820).

Gould, Monogr. Ramph., 1st ed. pl. 23, 2d ed. pl. 23. Swains. Zool. Ill. ii. pl. 90.

This is the first of three species which form a sub-group of the genus *Pteroglossus* ; all having the plumage dark green on the upper parts, and plain greenish-yellow on the under parts, without the bands and spots which are so conspicuous in the preceding sub-group, or typical *Pteroglossus*. These species resemble each other, but differ in size and other characters, especially the colors and markings of the bills, and are without exception represented with entire accuracy in Mr. Gould's Monograph of the Ramphastidæ.

Adult ♂. Small ; bill with both mandibles yellow, tipped with black, the under mandible black at base, and a wide longitudinal band on the culmen black. Both mandibles with irregular black marks on their cutting edges (rather remotely resembling letters). Head and neck black ; back, wings and tail dark green ; rump scarlet ; under parts of body greenish-yellow or lemon-yellow ; tibiæ mixed with chestnut ; legs dark green.

Adult ♀. Throat and sides of the neck dark chestnut, otherwise like the male.

Young ♂. Bill dull yellow, with the band on the culmen dull brown and indistinct, and tipped with dull brown. Head above black, throat chestnut ; otherwise as in adult. Yellow of the under parts with obscure spots of dull reddish.

Total length about 13 inches ; wing $4\frac{1}{2}$, tail $5\frac{1}{4}$, bill (chord) $2\frac{3}{4}$ to $3\frac{1}{4}$ inches.

Hab.—Northern south America, Northern Brazil, "Guiana," "Para." Spec. in Mus. Acad. Philadæ.

Distinguished from the succeeding by the under mandible being yellow in a large middle space (the under mandible is entirely black in both of the succeeding,—*P. Humboldtii* and *P. viridis*). This is a common species in collections, and of which numerous specimens are in Acad. Mus., but none of them very carefully labelled for locality, being only given as "Brazil" and "Guiana."

13. PTEROGLOSSUS HUMBOLDTII, Wagler.

Pteroglossus Humboldtii, Wagl. Syst. Av. p. (1827).

Gould, Monogr. Ramph., 1st ed. pl. 22, 2d ed. pl. 22.

Resembles the preceding, *P. inscriptis*, but is larger, and has the under mandible black. Cutting edge of the upper mandible with irregular black marks, remotely resembling letters. Tibiæ chestnut, and in some specimens there are obscure marks of dull chestnut, forming an imperfect and partially concealed band on the abdomen. Plumage in both sexes as in the preceding.

Total length about 15 to 17 inches ; wing 5 to $5\frac{1}{2}$, tail 6 to $6\frac{1}{2}$, bill (chord) $3\frac{1}{2}$ to 4 inches.

Hab.—Northern Brazil, "Upper Amazon," "Minas Gerass," Peru, "Head waters of the Huallaga River." Spec. in Mus. Acad. Philadelphia, and Mus. Smiths. Washington.

Clearly distinguished from the preceding by its black under mandible. Specimens in the extensive and valuable collection made by Mr. Walter S. Church, from the head waters of the Huallaga River, Peru, are the largest, and have a partial band on the abdomen, of chestnut, much more apparent than in specimens from Mr. Wallace's collections on the Upper Amazon. The

[Sept.

bill also seems more slender. Specimens in Acad. Mus. labelled "Upper Amazon."

14. *PTEROGLOSSUS VIRIDIS* (Linnæus).

Ramphastos viridis, Linn. Syst. Nat. i. p. 150 (1766).

Ramphastos glaber, Lath. Ind. Orn. i. p. 138 (1790).

Pteroglossus brevis, Less. Traite d'Orn. i. p. 178 (1831).

Gould, Monogr. Ramph. 1st ed. pl. 21, 2d ed. pl. 24. Swains. Zool. Ill. iii. pl. 169. Shaw, Nat. Misc. xvii. p. 717. Buff. Pl. Enl. 727, 728. Le Vaill. Ois. Par. pl. 16, 17. Edwards' Birds, vii. pl. 330.

Like the preceding in colors and general characters, but without the irregular letter-like marks on either mandible. Upper mandible dull greenish-yellow, with a black line near to and parallel with the culmen; under mandible black. Plumage of the male much as in the preceding; head black, back, wings and tail dark green; under parts greenish-yellow; tibiae green, mixed with dull chestnut.

Female. Head and neck chestnut; otherwise like the male.

Total length about 13½ inches: wing 4½ to 4¾, tail 4½ to 5, bill (chord) 3½ inches.

Hab.—Northern South America, "Guiana." Spec. in Mus. Acad. Philada.

Long known and common in collections from Guiana and Northern Brazil. Numerous specimens in Acad. Mus., but labelled only "Guiana" and "Brazil."

3. *Pyrosterna*.

Genus *Pyrosterna*, Bonap. Aten. Ital. (1854.)

15. *PTEROGLOSSUS BITORQUATUS*, Vigors.

Pteroglossus bitorquatus, Vig. Zool. Jour. ii. p. 481 (1826).

Gould, Monogr. Ramph. 1st ed. pl. 16, 2d ed. pl. 26.

We now enter upon another well defined sub-group, presenting brilliant colors, and with a wide belt of scarlet on the breast in all of the five species at present known. Very handsome, and distinguished from each other mainly by the colors of the bills.

Adult ♂. Bill with the upper mandible yellow, under mandible white at base, with its terminal half black. Head above black; throat and sides of the neck chestnut; a narrow crescent of pale yellow on the neck in front, succeeded by a wide transverse band of scarlet; abdomen pale yellow; tibiae dull green. Wide space on the neck behind scarlet; back, wings and tail dark green; rump scarlet. Legs greenish-blue. Sexes alike?

Total length about 14 inches; wing 4½ to 5, tail 5½, bill (chord) 3¼ to 3½ inches.

Hab.—Northern South America, "Para," "Guiana." Spec. in Mus. Acad. Philada.

Of this gayly colored species four specimens are in the Acad. Mus., which are all that I have seen. It is easily distinguished by its white and black under mandible, and is accurately and very handsomely figured by Mr. Gould as above. Specimens in Acad. Mus. are labelled "Para" and "Guiana," and occasionally brought also in collections from New Grenada.

16. *PTEROGLOSSUS STURMII*, Natterer.

Pteroglossus Sturmii, Nat. in Imp. Mus. Vienna. Sturm ed. Gould Monog.

(not paged, 1842.) Gould, Monog. Ramph. 2d ed. (1854.)

Gould, Monogr. Ramph. 2d ed. pl. 17. Sturm's ed. pl. 7.

Similar to the preceding, but smaller, and with the under mandible entirely black.

Hab.—Northern South America, "Rio Madeira" (Natterer). Spec. in Imp. Mus. Vienna

This species I have not seen. Its point of distinction from *P. bitorquatus* is mainly its black under mandible, but a few other characters are pointed out in Sturm's edition of Gould's *Ramphastidæ*, as above, and in Mr. Gould's second edition.

17. *PTEROGLOSSUS FLAVIROSTRIS*, Fraser.

Pteroglossus flavirostris, Fras. Proc. Zool. Soc. London, 1840, p. 60.

Pteroglossus Azaræ, Gould, Monog. Ramph., 1st ed. (nec Vieill.)

Gould, Monog. Ramph., 1st ed. pl. 17, 2d ed. pl. 29.

Generally resembling the two preceding, but with the scarlet belt restricted to the neck.

in front, and succeeded by a wide transverse belt of black, edged with scarlet on its lower border; abdomen greenish-yellow. Head above black; throat and sides of the neck chestnut; neck behind with a wide band of brownish-red or deep red (nearly scarlet). Back, wings and tail dark green, rump scarlet. Bill yellow, with a transverse band of orange near the cutting edge of the lower mandible; edge of the upper mandible black.

Total length 12 to 15 inches; wing $4\frac{1}{2}$ to $5\frac{1}{2}$, tail 5 to $6\frac{1}{2}$, bill (chord) $3\frac{1}{4}$ to $3\frac{3}{4}$ inches.

Hab.—Northern South America, New Granada, Northern Brazil, Rio Negro, Rio Amazons, Para. Spec. in Mus. Acad. Philada. and Mus. Smiths. Washington.

This very handsome species is frequently received in collections from Bogota, and is readily distinguished from the two preceding by its wide band of black on the breast, the scarlet band being restricted to the neck in front. From the two species next succeeding, *P. Mariæ* and *P. Azaræ*, this bird is mainly distinguished by the colors of the bill.

18. PTEROGLOSSUS MARIÆ, Gould.

Beauharnaisius Mariæ, Gould, Monogr. Ramph. Intr. p. 22 (2d ed. 1854).
Gould, Monogr. Ramph., 2d ed. pl. 30.

Much resembling the preceding, but smaller, and with the under mandible entirely dull orange or ochre color (not with a stripe only of that color on the lower mandible, as in *P. Azaræ*). Other colors as in *P. flavirostris*.

Total length 14 inches (Gould).

Hab.—Amazon River. Spec. in Mus.?

This species I have not seen.

19. PTEROGLOSSUS AZARÆ (Vieillot).

Ramphastos Azara, Vieill. Nouv. Dict. xxxiv. p. 282 (1819).

Pteroglossus nigridentis, Temm. Man. d'Orn. i. p. 75 (1820).

Gould, Monogr. Ramph. 2d ed. pl. 28. Vieill. Gall. Supp. pl. 16. Le Vaill. Ois. Par. Supp. pl. A.

Resembling the two species immediately preceding, *P. flavirostris* and *P. Mariæ*, but with a wide longitudinal band in the upper mandible of orange-red; under mandible yellow. Colors of plumage as in *P. flavirostris*, and about the same size.

Total length $14\frac{3}{4}$ inches (Gould).

Hab.—Amazon River (Gould).

This species I have not seen.

4. *Beauharnaisius*.

Genus *Beauharnaisius*, Bonap. Consp. Av. i. p. 95 (1849).

20. PTEROGLOSSUS BEAUHARNAISI, Wagler.

Pteroglossus Beauharnaisii, Wagl. "Unterh. das Ausland, 1830, p. 470."

Pteroglossus Pæppigii, Wagl. Isis, 1832, p. 1230.

Pteroglossus lepidoccephalus, Nitzsch. Pterylog. p. 136 (1840).

Pteroglossus ulocomus, Gould, Proc. Zool. Soc. London, 1833, p. 38.

Gould, Monogr. Ramph. 1st ed. pl. 18, 2d ed. pl. 25.

Differs from all other species in having the feathers of the head changed into a singular tissue resembling horn or whalebone, which are curled on the top of the head, flattened or spatulate on the occiput, and black (on the head above). Throat and sides of the neck with similar horn-like feathers, which are straight, and white, tipped with black. Back of the neck and rump carmine; back, wings and tail dark green. Breast yellow, with numerous small spots of scarlet; sides and a wide band on the abdomen scarlet; middle of the abdomen yellow; tibiae green.

Total length 16 to 18 inches.

Hab.—Northern South America, Upper Amazon. Spec. in Mus. Acad., Philada.

A curious bird, easily recognized by its most singular head-gear, which has the appearance of being composed of curled shavings of horn or whalebone of a lustrous black color. Rare in American collections, but stated to be common enough in the countries on the Rio Amazons. Specimens in Acad. Mus. were received from European dealers.

5. *Baillonius*.

21. PTEROGLOSSUS BAILLONI (Vieillot).

Ramphastos Bailloni, Vieill. Nouv. Dict. xxxiv. p. 283 (1819).

[Sept.

Pteroglossus croceus, Jard. and Selb. Ill. Orn. i. (no page nor date.)

Gould, Monogr. Ramph. 1st ed. pl. 20, 2d ed. pl. 41. Le Vaill. Ois. Parad. ii. pl. 18. Jard. and Selb. Ill. Orn. i. pl. 6.

A singular and anomalous form, not related specifically to any other. Head and entire under parts saffron-yellow. Rump crimson; upper parts of body, wings and tail yellowish-green. Sexes alike.

Total length about 15 to 16 inches.

Hab.—Central and Eastern South America, Brazil. Spec. in Mus. Acad. Philada. and Mus. Smiths. Washington.

Quite common in collections from Brazil. This peculiar and oddly-colored species seems to be most properly arranged here, though usually rated as an *Andigena*. It does not intimately resemble any other species of Toucan.

The following may be an additional species of *Pteroglossus*, but is doubtful, and unknown to modern naturalists.

25. *PTEROGLOSSUS ALDROVANDI* (Shaw), Wagler, Syst. Av. sp. 1 (1827).

Ramphastos Aldrovandi, Shaw, Gen. Zool. viii. p. 366 (1811).

Ramphastos picatus, Linn. Syst. Nat. i. p. 152 (12th ed. 1776)?

Albin's Birds, ii. pl. 25.

"This bird is little bigger than the common *Maggie*; the head, neck, and upper part of the back towards the neck, are black; the rest of the back and wings show something of a cinereous whiteness. The breast shines with a most bright and lovely gold or saffron color, with a certain redness near the beginning; the belly and thighs of a most beautiful vermilion or scarlet color. The red color reaches almost half-way of the tail, and is intercepted by a broad bar of black, and ending in a beautiful red; the legs, feet and claws are black."

"Its bill is very large, considering the bigness of the bird; its length was six inches, breadth at the upper part towards the head two inches and a quarter, the circumference at the same place five inches and a half; the upper chap is large and somewhat hooked, with a cavity exactly fitting the under chap, both serrate (*sic*) or toothed, and of a thin bony substance, and a covering over that of a horny-like scale, both very thin and light, weighing but eight drachms. It was of a yellowish color, clouded with a darkish green, towards the end or point reddish; its nostrils were situate just above the horny substance of the bill, adjoining to the head, which is large and thick, as is suitable and requisite to sustain a bill of that length and bigness."—A Natural History of Birds, illustrated with two hundred and five copper plates curiously engraven from life, and exactly colored by the author, Eleazer Albin. To which are added Notes and Observations by W. Derham, D. D., Fellow of the Royal Society. London, 1738 (vol. ii. p. 24).

The peculiarities of the bird here described are the abdomen and thighs being scarlet, and the tail being scarlet at base and tipped with "beautiful red." The plate, "exactly colored," seems to represent a *Pteroglossus*, but of a species quite unknown, and, in fact, has much the appearance of a fictitious specimen, though Albin, as above (ii. p. 24), intimates that he has seen it living. It is the sole authority for the species.

III. Genus SELENIDERA, Gould.

Genus *Selenidera*, Gould, Icon. Av. pt. i. (1837).

1. *Selenidera*.

1. *SELENIDERA MACULIROSTRIS* (Lichtenstein).

Pteroglossus maculirostris, Licht. Verz. p. 7 (1823).

Ramphastos maculatus, Vieill. Gal. Ois. ii. Supp. p. (1834).

Gould, Monog. Ramph. 1st ed. pl. 24, 2d ed. pl. 31. Vieill. Gal. ii. Supp. pl. 14, 15. Jard. and Selby, Ill. Orn. i. pl. 26. Le Vaill. Ois. Par. pl. 15, Supp. pl. A.A.

1867.]

With this species we again enter upon a group resembling each other in colors of plumage, but distinguished by different colors and markings of the bills. All the species are smaller than in either of the preceding groups, *Ramphastos* or *Pteroglossus*, and form apparently a natural and readily defined group, probably generic. All the species are singularly alike in colors of plumage, and are nearly of the same size. They are, without exception, represented with extraordinary accuracy in Mr. Gould's Monograph of the Family *Ramphastide*. The ear coverts are yellow in all known species of this group, and present an immediately available generic character.

Adult ♂. Bill pale bluish or greenish-white, darker on the culmen and at the base; upper mandible with about four or five irregular transverse bars of black, the last of which (nearest the tip) extends to the under mandible also, forming a very distinct and nearly perfect transverse band across both mandibles near the end. Head, neck and breast glossy black; ear coverts orange nearest the eye, pale yellow posteriorly. Narrow band of yellow on the back of the neck; back, wings and tail dark olive-green, tinged somewhat with yellowish on the back and rump. Flanks with a large spot of orange; abdomen yellowish-green; under tail coverts scarlet. About six middle tail feathers, tipped with chestnut. Feet greenish-brown.

Adult ♀. Head, neck and breast reddish-chestnut; otherwise much as in the male.

Total length about 12 to 13 inches; wing 5 to 5¼, tail 4¼ to 5, bill (chord) 2½ inches.

Hab.—Central and eastern Brazil, Rio de Janeiro, St. Katharines, Bahia. Spec. in Mus. Smiths. Washington, and Mus. Acad. Philada.

Abundance of specimens of this species in Smiths. Mus. and Acad. Mus., but not specially stating locality; nor is there any specimen in young or immature plumage. It is brought commonly from Brazil.

2. SELENIDERA GOULDII (Natterer).

Pteroglossus Gouldii, Natt. Proc. Zool. Soc. London, 1837, p. 44.

Gould, Monog. Ramph. 2d ed. pl. 32. Icon. Av. pl. 7.

Much resembling the preceding, and about the same size, but with the basal half to two-thirds of the upper mandible black (not with transverse bars or bands, as in that species, *S. maculirostris*.) Under mandible with one transverse band near the tip. Large spaces on the flanks deeper orange.

♀. Very nearly as in *S. maculirostris*, but with the upper mandible black at base, as in the male.

Total length 12 to 13 inches.

Hab.—Northern South America, Para, Rio Amazons. Spec. in Mus. Acad. Philada.

Easily distinguished by the black of the upper mandible, and inhabits more northern regions of South America than *S. maculirostris*. Specimens in Acad. Mus. labelled "Para" and "Rio Amazons," the latter from Mr. Wallace's collections.

3. SELENIDERA LANGSDORFFII (Wagler).

Pteroglossus Langsdorffii, Wagl. Syst. Av. (1827.)

Gould, Monog. Ramph. 1st ed. pl. 28, 2d ed. pl. 33.

Resembling the preceding two species, but with the bill entirely bluish-black, paler at base, especially of the under mandible. Colors of the plumage much as in the preceding, in both sexes.

Total length about 12 to 13 inches.

Hab.—Western South America, Peru, Amazon River (Lieut. Herndon). Spec. in Smiths. Mus. Washington, and Mus. Acad. Philada.

This species has the upper mandible uniform bluish-black or dark horn-color, paler at base; under mandible with the paler base extending to one-half to two-thirds of its length, bluish-black in the terminal portion. Easily distinguished from the two preceding or other species by these colors of the bill. Lieut. Herndon's specimens in Smiths. Mus. are labelled "Amazon River," but as he crossed the continent on the route of that river, they are probably from its western or head waters. Other specimens in Acad. Mus. are from Peru.

4. SELENIDERA REINWARDTHI (Wagler).

Pteroglossus Reinwardthii, Wagl. Syst. Av. (1827.)

Gould, Monog. Ramph. 1st ed. pl. 26, 2d ed. pl. 34.

Like the preceding, but with the bill dull red in the basal two-thirds of both mandibles; terminal one-third bluish-black. Plumage in both sexes much as in the preceding. Size perhaps rather larger.

Total length $12\frac{1}{2}$ to $13\frac{1}{2}$ inches.

Hab.—Western South America, Peru, Ecuador? Spec. in Mus. Acad. Philada.

Having an entirely peculiar coloring of the bill, and inhabiting western and perhaps north-western South America. Mr. Gould mentions a specimen which was probably from the country on the Rio Napo. Specimens in Acad. Mus. are from Peru.

5. *SELENIDERA NATTERERI* (Gould).

Pteroglossus Nattereri, Gould, Proc. Zool. Soc. London, 1835, p. 157.

Gould, Monog. Ramph. 1st ed. pl. 25, 2d ed. pl. 35.

Bill red, but with culmen green, and with several irregular transverse bars of greenish-black across both mandibles, widest at the base. Ear coverts pale yellow nearest the eye, orange posteriorly (the reverse of all the preceding species). Chestnut color of the tibia extending on the flanks. Plumage generally as in all the preceding in both sexes.

Total length 12 to 13 inches.

Hab.—Northern South America, Rio Negro, British Guiana. Spec. in Mus. Acad. Philada.

Differing again from all of the preceding in the colors of the bill, and having the colors of the ear spot reversed, as above described. Spec. in Acad. Mus. labelled as above.

2. *Piperivorus*.

Genus *Piperivorus*, Bonap. Ois. De Lattre, p. 84 (1854).

6. *SELENIDERA PIPERIVORA* (Linnaeus).

Ramphastos piperivorus, Linn. Syst. Nat. i. p. 103 (1758).

Pteroglossus culik, Wagl. Syst. Av. (1827.)

Gould, Monog. Ramph., 1st ed. pl. 27, 2d ed. pl. 36. Buff. Pl. Enl. 577, 729. Edwards' Birds, vii. pl. 330. Le Vaill. Ois. Parad. pl. 13, 14.

This species, though having in the male the same general colors of plumage as all the preceding species of the genus *Selenidera*, differs in the bill being longer and more strongly curved, and the plumage of the female is different from that of those species, and quite peculiar. The bill somewhat approaches that of *Pteroglossus*, and this species may be regarded as an analogue of that group in the present, just as the next species represents *Ramphastos*. This species, undoubtedly, as Mr. Gould remarks with his usual accuracy and excellent judgment, is properly to be retained in this genus.

Adult ♂. Upper mandible red at base, with its terminal seven-eighths black; under mandible with its basal one-half red, and its terminal one-half black (base of bill dull reddish-yellow in dried specimens). Ear spot yellow, or very slightly tinged with orange. Large space on the flanks yellowish-green, scarcely distinguishable in some specimens. Other plumage as in the preceding, but with the green of the upper parts darker. All the tail feathers tipped with chestnut.

Total length $12\frac{1}{2}$ to $13\frac{1}{2}$ inches.

Adult ♀. A wide space on the neck behind chestnut; top of the head black. Back, wings and tail green, the back with a yellow tinge. Throat, neck before and breast fine bluish-gray, with a greenish tinge running into yellowish-green on the abdomen. Tibiæ chestnut, generally mixed with green; under tail coverts scarlet; tail feathers tipped with chestnut. Legs greenish-brown.

Hab.—Northern South America, Guiana, Cayenne, Rio Amazons. Spec. in Mus. Acad. Philada.

Numerous specimens in Acad. Mus., labelled as above.

3. *Ramphastoides*.

7. *SELENIDERA SPECTABILIS*, Cassin.

Selenidera spectabilis, Cass. Proc. Acad. Philada. 1857, p. 214.

Jour. Acad. Philada. iv. pl. 1 (quarto).

The largest species of this genus, and with the bill larger and wider vertically. Easily distinguished from either of its congeners by its size and the colors of the bill, though having the same general colors of plumage. Ear coverts yellow.

1867.]

Adult ♂. Colors of the upper mandible divided obliquely by a line from below the nostril to the edge of the upper mandible within its terminal one-third. Upper portion and tip greenish-yellow (in dried specimen); lower portion and under mandible greenish-black, paler at base. Bill at base with a line of black (as in species of *Ramphastos*). Ear spot light yellow; flank with a large spot of orange-yellow. Head, neck and body below glossy black; back and wings dark olive-green. Under tail coverts scarlet; tibiae chestnut. Tail greenish-blue, with gray tinge (uniform, and having no chestnut tips). Legs bluish-brown.

Adult ♀. Bill as in the male. Head above and neck behind dark chestnut; other plumage as in the male.

Total length about 15 inches; wing $5\frac{1}{2}$, tail 5, bill (chord) 4 inches.

Hab.—Northern South America, Central America, "Cocuyas de Veragua, New Grenada" (Mr. Robert W. Mitchell), "Province of Chocho, New Grenada" (Mr. W. S. Wood, Jr.), Costa Rica (Mr. J. Carmiol). Spec. in Mus. Smiths. Washington, and Mus. Acad. Philada.

Specimens in Smiths. Mus. are in the valuable collections of Mr. Julian Carmiol, from Costa Rica, and from Captain Michler's collection from the Rio Atrato. Mr. Mitchell's type specimens in Acad. Mus. are from New Grenada, as above.

IV. Genus AULACORAMPHUS, G. R. Gray.

Genus *Aulacoramphus*, G. R. Gray, List Gen. 1840, p. 50.

Aulacorhynchus, Gould, Proc. Zool. Soc. London, 1834, p. 147.

1. *Aulacoramphus*.

1. *AULACORAMPHUS SULCATUS* (Swainson).

Pteroglossus sulcatus, Swains. Jour. Roy. Inst. ix. p. 267.

Swains. Zool. Ill. i. pl. 44. Temm. Pl. Col. 356. Gould, Mon. Ramph., 1st ed. pl. 31, 2d ed. pl. 42.

Entire plumage grass-green, darker on the upper parts of the body, wings and tail lighter, and tinged with yellow on the under parts; throat bluish or grayish-white; cheeks and narrow stripe over the eye blue. (Rump green, uniform with the back.) Both mandibles with wide, very distinct grooves throughout their length. Upper part of upper mandible and tip of under mandible brownish-red; lower part of upper mandible black. Under mandible, at base, red (tip brownish-red); intermediate space black. Legs greenish-brown. Tail bluish at the end (not tipped with reddish-brown, as in the next succeeding).

Total length about 13 inches; wing $4\frac{1}{2}$ to $5\frac{1}{2}$, tail 5, bill (chord) $2\frac{1}{2}$ to 3 inches.

Hab.—Northern South America, Venezuela, "Caraccas." Spec. in Mus. Acad. Philada.

Easily distinguished by the grooved or *sulcate* bill, but especially that character in the under mandible. In the specimens now before me there is considerable difference in size, and especially in that of the bill; and in one specimen, obtained at Caraccas, the bill measures $2\frac{1}{4}$ inches, wing $4\frac{1}{2}$ inches. In the largest specimen the bill is 3 inches, wing $5\frac{1}{2}$ inches. Several specimens in Acad. Mus.

This species is the type of a group, undoubtedly generic, first indicated by Mr. Gould under the name *Aulacorhynchus*, but which, having been previously used, was changed by Mr. Gray to *Aulacoramphus*, as above. It is a singularly uniform group in coloring, all of the eleven species at present known being of grass-green and yellow colors, though the species are for much the greater part more strongly distinct from each other than in any other group of this family. My present impression is that size is an uncertain character in this genus, and more variable, and generally so, in the same species than usual.

2. *AULACORAMPHUS DERBIANUS* (Gould).

Aulacorhynchus Derbianus, Gould, Proc. Zool. Soc. London, 1835, p. 49.

Gould, Mon. Ramph. 1st ed. pl. 32, 2d ed. pl. 43.

Upper mandible only sulcate; occiput with a wide transverse band of pale blue; longer tail feathers tipped with reddish-chestnut. (Rump green, uniform with the back.) Both mandibles at base brownish-red; tip of upper mandible red; intermediate space of both mandibles black. Entire other plumage grass-green; throat bluish or grayish-white; cheeks blue; line over the eye bluish-white; line at base of bill white, and very conspicuous. Larger than the preceding.

Total length about 14 to 15 inches.

Hab.—Western South America, Peru (Dr. W. S. W. Ruschenberger, U. S. Navy), "Columbia" (Mr. J. P. Verreaux's label), Bolivia (Mr. Gould).

[Sept.

Resembling the preceding in colors, but easily distinguished by the large occipital band of pale blue, and has the longer tail feathers tipped with chestnut (which is not the case in the preceding, *A. sulcatus*). The under mandible is not grooved, as in the preceding.

Of this species, specimens from Peru seem to have the bills darker than in others labelled as from "Columbie" in Mr. Jules Verreaux's hand-writing, though otherwise quite similar. In the Acad. Mus. there are specimens in very fine plumage from the "Province of Curco, Peru," in the valuable collections presented by Dr. W. S. W. Ruschenberger, of the United States Navy.

3. *AULACORAMPHUS CASTANEORHYNCHUS* (Gould).

Pteroglossus (*Aulacorhynchus*) *castaneorhynchus*, Gould, Ann. and Mag. Nat. Hist. 1842, p. 238.

Aulacoramphus castaneirostris, Bonap. Ois. Delattre, p. 84 (1854).
Gould, Mon. Ramph. 2d ed. pl. 44.

Larger. Bill fine chestnut-red, culmen usually black; large space in middle of under mandible usually black; line of white at base of bill wide and very distinct, especially on under mandible. Rump scarlet; longer feathers of the tail widely tipped with brownish-chestnut. Entire plumage grass-green, with a golden tinge on the neck behind and back, paler and strongly tinged with blue on the under parts, especially the breast; middle tail feathers strongly tinged with blue; cheeks and small spot over the eye blue.

Total length about 17 to 19 inches.

Hab.—Northern South America, New Grenada, "Bogota." Spec. in Mus. Acad. Philada.

The largest species of this group. Much resembling the preceding, *A. Derbyanus*, but with the rump scarlet. In three specimens now before me in Acad. Mus., no two are exactly similar in the colors of the bill, and one only corresponds in that respect with Mr. Gould's beautiful plate of this species. In two others a band of black is strong and well-defined on the culmen and on the middle of the lower mandible. In the one specimen the black of the culmen is much more restricted and less clearly defined, and the under mandible almost entirely black.

Easily distinguished from either of the preceding by its scarlet rump and larger size. Specimens in Acad. Mus. from Bogota.

4. *AULACORAMPHUS HEMATOPYGUS* (Gould).

Pteroglossus hematopygus, Gould, Proc. Zool. Soc. London, 1834, p. 147.
Gould, Mon. Ramph. 1st ed. pl. 33, 2d ed. pl. 45.

Like the preceding, *A. castaneorhynchus*, but smaller, and with a shorter and stouter bill. Total length 14 inches (Mr. Gould).

Hab.—Ecuador. Spec. in coll. Mr. John Gould, and Dr. P. L. Selater, London.

In the large collection now under examination I have no specimen which exactly corresponds with Mr. Gould's plate and description, but I do not find any characters which might not readily be found in the young of the preceding, *A. castaneorhynchus*, especially in view of the liability to variation which seems to prevail in this group. One specimen only known to Mr. Gould, but this species is given by Dr. Selater in List of Birds from Pallatanga, Ecuador. (Proc. Zool. Soc., London, 1859, p. 146).

5. *AULACORAMPHUS CÆRULEICINCTUS* (D'Orbigny).

Aulacoramphus cæruleicinctus, D'Orb. Voy. Am. Ois. p. 382 (1844).

Pteroglossus Lichtensteini, Sturm ed. Gould's Monog. (not paged, 1845).

D'Orb. Voy. Am. Mer. Ois. pl. 66. Gould, Mon. Ramph. 2d ed. pl. 46

Large; bill dark bluish horn-color, with the tip and edges of both mandibles yellowish-white. Wide transverse band on the breast pale blue. Rump red; tips of longer tail feathers brownish-chestnut; throat bluish-white; cheeks blue; line over the eye bluish-white. Entire other plumage grass-green, tinged with yellow on the abdomen and under tail coverts.

Total length from 14 to 16 inches.

Hab.—Western South America, Bolivia, "Columbie." Spec. in Mus. Acad. Philada. and Mus. Smiths. Washington.

The bluish or horn color of the bill is peculiar, and immediately available in the recognition of this species. Five specimens in Mus. Acad. differ in size

1867.]

and also in length and thickness of bill, two specimens from D'Orbigny's collections being the smallest, and probably not adult. These last are from "Yungas, Bolivia." Others are labelled "Columbic," in the hand-writing of Mr. Jules Verreaux. The wide pectoral band of pale blue is also a strong and peculiar feature in this species.

One specimen of this fine species is in the very interesting and valuable collection presented to the Smithsonian Institution by the Hon. D. K. Carter, of Washington, D. C., and made by him while Minister of the United States to the republic of Bolivia.

2. *Ramphoxanthus*.

Genus *Ramphoxanthus*, Bonap. Ois. De Lattre, p. 84 (1854).

6. *AULACORAMPHUS PRASINUS* (Gould).

Pteroglossus prasinus, Gould, Monog. Ramph. 1st ed. p. (1834).

"*Pteroglossus prasinus*, Lichtenstein," Gould, as above.

Gould, Mon. Ramph. 1st ed. pl. 29, 2d ed. pl. 47.

Upper mandible yellow, with a longitudinal stripe on its cutting edge black; spot at the base of the culmen black, passing into chestnut-red anteriorly, and a small irregular spot of black below the nostril; under mandible black. Under tail coverts chestnut, and all the tail coverts tipped with chestnut. Throat and cheeks white, frequently tinged with yellowish or bluish. Entire other plumage grass-green, tinged with golden on the head and neck behind, and with blue on the under parts of the body, at the ends of the shorter quills, and towards the ends of the longer tail feathers.

Total length 13 to 14½ inches; wing 5, tail 5 to 5½ inches.

Hab.—Mexico, Jalapa (Mr. D'Oca), Orizaba (Prof. F. Sumichrast), Mirador, near Vera Cruz (Dr. C. Sartorius), Guatemala, Coban, Clusee (Mr. Henry Hague). Spec. in Mus. Acad. Philada. and Mus. Smiths. Washington.

An abundant species in American collections, and contained in all the various and interesting collections from Jalapa, Mexico, sent to the United States by Mr. Raphael Montes D'Oca. Also, usually in the very fine collections from Orizaba sent by Prof. Sumichrast, and from Mirador by Dr. Sartorius, to the Smithsonian Institution. Specimens in the Smiths. Museum from "Central Guatemala" are in a very valuable collection made by Mr. Henry Hague.

This is the first of several species in which the upper mandible is yellow, as above described. Very handsomely figured by Mr. Gould, as above cited. The line at the base of the bill in this species is yellow.

7. *AULACORAMPHUS WAGLERI* (Sturn).

Pteroglossus Wagleri, Sturn, ed. Gould's Mon. Ramph. (not paged, 1845).

Pteroglossus pavoninus, Gould, Proc. Zool. Soc. London, 1835, p. 158.

"*Pteroglossus pavoninus*, Mus. Mun.," Gould, as above.

Gould, Mon. Ramph. 1st ed. pl. 30, 2d ed. pl. 48.

Like the preceding, *A. prasinus*, but with the base of the upper mandible black (yellow in *A. prasinus*), and the line at the base orange-yellow.

Total length about 14 inches.

Hab.—Mexico? Spec. in Imp. Mus. Vienna.

This species I have not seen, but from Mr. Gould's and Mr. Sturn's descriptions and figures I have no doubt that it is an entirely valid and respectable species.

8. *AULACORAMPHUS ALBIVITTATA* (Boissonneau).

Pteroglossus albivitta, Boiss. Rev. Zool. 1840, p. 70.

Pteroglossus microrhynchus, Sturn, Mon. Ramph. (name on plate).

Gould, Mon. Ramph. 2d ed. pl. 49.

Like the two immediately preceding, *A. prasinus* and *A. Wagleri*, but with a wide transverse band at base of the bill, white and conspicuous (narrow and yellow in those species). Upper part of upper mandible yellow, lower part black; a narrow band across the culmen brownish-black. Plumage as in *A. prasinus*.

Total length about 13 inches.

Hab.—Northern South America. New Grenada, Bogota. Spec. in Mus. Acad. Philada. and Mus. Smiths. Washington.

Frequently received in Bogota collections, and several specimens in Acad. Mus. are labelled "Columbie" in Mr Verreaux's hand-writing. Much resembling the two preceding, especially *A. prasinus*, but easily recognized by its white band at the base of the bill. The black portion of the under mandible is also much wider.

9. *AULACORAMPHUS ATROGULARIS* (Sturn).

Pteroglossus atrogularis, Sturn ed. Gould's Mon. Ramph. (not paged, 1845). Gould, Mou. Ramph. 2d ed. pl. 50.

Throat black. Upper part of upper mandible yellow, lower part black; upper mandible with a line of white at base, frequently tinged with yellow, or with a line of white and another of yellow at base. Under mandible black, with a wide line of white at base, sometimes tinged with yellow. Colors generally as in *A. prasinus* and *A. bivittatus*.

Total length $12\frac{1}{2}$ to 15 inches.

Hab.—Western South America, "Peru, Ecuador" (Mr. Gould), "Columbie" (Mr. Verreaux's label). Spec. in Mus. Acad. Philada.

The peculiarity of this species is the black throat, which character is strongly defined in two specimens in Acad. Mus., but in one other the throat is black, tinged and edged with blue. This specimen is, however, evidently not adult.

10. *AULACORAMPHUS CÆRULEOGULARIS*, Gould.

Aulacorampus cæruleogularis, Gould, Proc. Zool. Soc. London, 1853, p. 45.

Gould, Mou. Ramph. 2d ed. pl. 51.

Throat and cheeks blue. Upper mandible with a wide transverse band of reddish-chestnut at base, and also a longitudinal band of black in the basal one-third of the culmen. Upper part of upper mandible yellow, lower part black; under mandible black; a wide line at base of bill yellow in upper mandible, wider and white in the lower mandible. Inferior tail coverts chestnut; all the tail feathers tipped with chestnut. Entire other plumage grass-green, strongly tinged with golden on the head, and with yellow on the abdomen. Legs bluish-brown.

Total length about $12\frac{1}{2}$ to 14 inches; wing $4\frac{1}{2}$ to 5, tail $4\frac{1}{2}$, bill (chord) $2\frac{3}{4}$ to 3 inches.

"Iris black, length 14 inches" (Dr. A. von Frantzius). "Iris brown, length $14\frac{1}{2}$ inches" (Mr. J. Carniol). "♀, length 13 inches."

Hab.—Costa Rica, "Berris," "La Palma," "San Jose" (Dr. A. von Franzius), "Dota," "Barranca," "Turriaba" (Mr. J. Carniol), Veragua (Mr. Gould). Spec. in Mus. Smiths. Washington.

Numerous specimens in the Smiths. Coll., exclusively from Costa Rica. This species strongly resembles the immediately preceding, *A. atrogularis*, but has the throat blue instead of black, and the plumage of the head is glossed with golden yellow, and in other respects it is quite distinct and easily recognized. Seems to be the most abundant species of Toucan inhabiting Costa Rica.

11. *AULACORAMPHUS CYANOLEMUS*, Gould.

Aulacorampus cyanolemus, Gould, Proc. Zool. Soc. London, 1866, p. 24.

"Male. Bill black, with a small mark of yellow at the tip of the upper mandible, and a band of white at the base of both mandibles, except on the culmen; this white band is much narrower on the upper than on the under mandible, and moreover has the posterior half of its breadth pale yellow. Naked skin around the eyes dull red; throat grayish-blue, approaching to violet, and becoming of a deeper tint where it joins the green of the neck; a tinge of blue also appears at the base of the ear coverts, towards the bill, and over the eye, where, however, it becomes of a greener hue. Plumage of the head and body deep grass-green, with a wash of yellow on the flanks; primaries black, edged with brown; under surface of the wing pale yellow; tail feathers deep green, conspicuously tipped with chestnut; under tail coverts chestnut-brown; legs green."

"Total length of male 12 inches; bill $2\frac{7}{8}$, wing $5\frac{1}{4}$, tail $5\frac{1}{2}$, tarsi $1\frac{1}{4}$."

"Female. Precisely similar in color, but, as is the case with all the other species of the genus, much smaller than the male."

"*Hab.*—Loxa in Ecuador."

"*Remark.*—This well marked species is allied to the *Aulacorampus cæruleigularis* of Panama and the *A. atrigularis* of Peru, but differs from the former in the smaller extent of blue on the throat, from the latter in having no trace of black on that part, and from both in the markings of the bill." (Mr. Gould.)

This is Mr. Gould's description, but the species is unknown to me.

1867.]

V. Genus ANDIGENA, Gould.

Genus *Andigena*, Gould, Proc. Zool. Soc. London, 1850, p. 93.1. *Andigena*.1. *ANDIGENA HYPOGLAUCUS* (Gould).*Pteroglossus hypoglaucus*, Gould, Proc. Zool. Soc. London, 1833, p. 70.
Gould, Mon. Ramph. 1st ed. pl. 19, 2d ed. pl. 38.

Bill with its basal one-half yellow, enclosing a nearly triangular spot of black near the base; terminal portion of upper mandible red; terminal portion of the under mandible black. Head above black; back and wing coverts reddish-brown; rump yellow; outer webs of quills dark green. Under parts and band around the neck light blue or bluish-gray; tibiae chestnut; under tail coverts scarlet; tail greenish-black, the four middle feathers tipped with chestnut; legs bluish-brown.

Total length 17 to 18 inches; wing $6\frac{1}{2}$, tail $6\frac{1}{2}$ to 7, bill 4 inches.*Hab.*—Western South America, Peru (Hon. J. Randolph Clay), "Columbie" (Mr. J. Verreaux's label). Spec. in Mus. Acad. Philada.

This is an oddly colored species, two specimens of which in the Acad. Mus. are all that I have seen. One specimen in excellent plumage is in the interesting collection made by the Hon. John Randolph Clay in Peru, while Minister of the United States to that country; and the other was received from the establishment of the Messrs. Verreaux, Paris. These specimens have the bills differing somewhat in size and length, but are otherwise quite similar.

This is the type of a very peculiar group, certainly of generic value, and so described and named as above by that great naturalist, Mr. John Gould, of London. All of the known species are of rather plain but grotesque and oddly arranged colors. This lot is evidently what my lamented and accomplished friend and associate, the late Dr. Wilson, was accustomed to call "the *eccentric* type" of the Toucans.

2. *ANDIGENA LAMINIROSTRIS*, Gould.*Andigena laminirostris*, Gould, Proc. Zool. Soc. London, 1850, p. 93.
Gould, Mon. Ramph. 2d ed. pl. 37.

Bill with a raised plate or lamina of yellow in its basal half; band at base of bill red, other parts of bill, black. A large spot on each flank orange-yellow. Head above and neck behind black; back and wings light brown or snuff-color; rump greenish-yellow. Under parts light blue; tibiae dark chestnut; under tail coverts scarlet; tail bluish-black, the four middle feathers tipped with chestnut; legs bluish-brown.

Total length about 18 inches; wing $6\frac{1}{2}$ to 7, tail $6\frac{1}{2}$ to 7, bill $3\frac{1}{2}$ inches.*Hab.*—Ecuador (Hon. Charles R. Buckalew). Spec. in Mus. Acad. Philada. and Mus. Smiths. Washington.

Strongly characterized by the curious raised plate in the basal half of the upper mandible. The colors of the plumage in this strange Toucan resemble those of the preceding, *A. hypoglaucus*, but differ entirely in the bill, and in the present bird there is no extension of the color of the under parts around the neck behind, and it has large spots of orange on the flanks.

The fine collection made in Ecuador by that accomplished gentleman and statesman, the Hon. Charles R. Buckalew, late Minister of the United States to that country, and now United States Senator from Pennsylvania, contained several excellent specimens of this curious bird, very similar in their colors and other characters. Mr. Buckalew's collection was presented by him to the Smithsonian Institution.

3. *ANDIGENA CUCULLATUS* (Gould).*Pteroglossus cucullatus*, Gould, Proc. Zool. Soc. London, 1846, p. 69.
Gould, Mon. Ramp. 2d ed. pl. 49.

Much resembling *A. hypoglaucus*, but with the bill yellow in its basal two-thirds and black in its terminal one-third; under mandible with a black spot near its base. Tail black (not tipped with chestnut). Plumage nearly as in *A. hypoglaucus*.

Total length about 18 inches.

Hab.—Bolivia. Spec. in Brit. Mus. London.

This species is not in any American collection, to my knowledge, and seems to

[Sept.

be only known from three specimens obtained in Bolivia by Mr. Thos. Bridges, and now or recently in British collections. I am not without a suspicion that this bird is the young of *A. hypoglaucus*, which, judging from Mr. Gould's excellent plate and description, it closely resembles, except in the colors of the bill.

2. *Ramphomelas*.

Genus *Ramphomelas*, Bonaparte, Ois. De Lattre, p. 84 (1854).

4. *ANDIGENA NIGRIROSTRIS* (Waterhouse).

Pteroglossus nigrirostris, Waterh. Proc. Zool. Soc. London, 1839, p. 111.

Pteroglossus melanorhynchus, Sturm, ed. Gould's Mon. Ramph.

Gould, Mon. Ramph. 2d ed. pl. 39.

Bill black. Head above and neck behind black; back and wing coverts sienna-brown; upper tail coverts pale yellow. Throat and sides of the neck bluish-white; under parts of body pale blue; under tail coverts scarlet; tibiae dark chestnut; quills greenish-black, edged externally with brown; tail bluish or greenish-black, the longer feathers tipped with chestnut; legs greenish-black.

Total length 18 to 19 inches; wing $6\frac{1}{2}$ to 7, tail 8, bill 4 to $4\frac{1}{2}$ inches.

Hab.—Northern South America, Bogota, "Columbie." Spec. in Mus. Acad. Philada.

Easily recognized by its entirely black bill, and not intimately resembling either of its preceding congeners. Specimens in Mus. Acad. were received from Europe, and are labelled "Bogota" and "Columbie."

5. *ANDIGENA SPILORHYNCHUS*, Gould.

Andigena spilorhynchus, Gould, Proc. Zool. Soc. London, 1858, p. 149.

"Crown of the head and back of the neck glossy black; back, wing coverts and margins of the primaries dull sienna brown, secondaries bluish-brown; upper tail coverts blue, strongly tinged with green; tail slaty-blue, tinged with green, the four central feathers largely tipped with chestnut; band across the rump sulphur-yellow. Throat and cheeks white, blending into the light blue of the breast and abdomen; thighs rich chestnut; under tail coverts blood-red; feet greenish-blue, with a lilac tinge on their under surface; bill black, with a mark of obscure brownish-red at the base of the upper mandible, which, when viewed in front, much resembles the letter W; this color advancing for a short distance on each side of the culmen, and extending down the sides of the base."

"Total length 18 inches; bill $3\frac{3}{4}$, wing 7, tail $7\frac{1}{2}$, tarsi $1\frac{3}{4}$."

Hab.—Forests of Beza, on the eastern side of the Cordillera, in Ecuador."

"Differs from *A. nigrirostris* in the bill being shorter, broader and much more robust, and colored with obscure brownish-red at the base of the upper mandible."

One specimen in Acad. Mus. seems to approach this description, but not sufficiently. It may be the young of *A. nigrirostris*. Dr. Selater possesses specimens from the Rio Napo, Ecuador, and says: "scarcely different from *A. nigrirostris*." (Cat. Am. B. p. 327.)

The following have been described as species of *Ramphastos*, but are either not so, or the descriptions are not sufficient:

1. *RAMPHASTOS ALBUS*, Gm. Syst. Nat. i. p. 357 (1788).

White Toucan, Lath. Syn. i. p. 336.

"All that we know of this species is that the bird is wholly of a pure white, and that it is now, or was very lately, alive in the menagerie of the King of Naples." Which small matter of information has in nowise increased that I know of. Not given by Latham in Gen. Hist., subsequently published.

2. *RAMPHASTOS PULCHER*, Müll. Syst. Nat. Supp. p. 84 (1776).

Ramphastos pavoninus, Gm. Syst. Nat. i. p. 353 (1788).

Tucana Mexicana viridis, Briss. Orn. iv. p. 423 (1760).

Xochitenucatl, Hernandez, His. Nov. Hisp. p. 51 (1651).

1867.]

"Avis est Psittaci magnitudine et forma, ac pene tota viridis, insertis tamen nonnullis pennis rubescentibus, pauoninisque aliis; verum crura, pedesque nigra sunt et tenuia; rostrum incurvum, quaternas pene uncias longum, serratumque, unde nomen, et luteo, ac nigro varium colore; calidarum regionum atque maritimarum Incola est, neque alium (quod nouerim) quam plumae praestat vsum." Hernandez, as above.

This description has been done into various languages by competent hands, but remains the sole authority for the species. It seems to be more like a Trogon than a Toucan.

3. RAMPHASTOS FLAVUS, Müll. Syst. Nat. Supp. p. 84 (1776).

Ramphastos luteus, Gm. Syst. Nat. i. p. 353 (1788).

Tucana lutea, Briss. Orn. iv. p. 432.

"Tucana dilute lutea; taenia utrinque longitudinali a rostro ad pectus usque nigra; tectricibus alarum superioribus minimis luteis; rectricibus albo et nigro variis."

"Habitat in Mexico." Brisson, as above.

Probably not a bird of this family. Brisson seems to abridge from "Eus. Nieremb. pag. 209," which author is not included in my circle of antique acquaintances.

4. RAMPHASTOS GLAUCUS, Müll. Syst. Nat. Supp. p. 84 (1776).

Ramphastos caeruleus, Gm. Syst. Nat. i. p. 357 (1788).

Tucana caerulea, Briss. Orn. iv. p. 433.

"Tucana in toto corpore coeruleo et cinereo varia."

"Habitat in Mexico." Brisson, as above.

This is another of the descriptions which Brisson apparently copies from "Eus. Nieremb. pag. 209," and perhaps also somewhat from "Aldrovandus, Orn. 1 p. 803, in qua hujus icon a Nierembergio mutuata." The figure in Aldrovandus probably is intended to represent a bird of this family, but neither it nor his description applies to any known species.

5. RAMPHASTOS DUBIUS, Gm. Syst. Nat. i. p. 357 (1788).

Blue-throated Toucan, Lath. Syn. i. p. 357.

"In a list of birds in the Museum of Baron de Fauquier of Montpelier, I find one by the name of *Toucan à gorge bleue*, with this addition, 'Ce Toucan n'est décrit par aucun auteur.' I do not find a Toucan with a blue throat mentioned by any writer, and must therefore, with him, conclude it to be a new species. As it is but very lately that I have known this circumstance, it has not been in my power to say further on this head, resting the whole, for the present, on his opinion." Latham, as above, and in Gen. Hist. ii. p. 294, gives the same account of it, in substance. I agree in allowing it to rest for the present, but should the original Baron or other be disposed to stir in the matter he can now be better accommodated.

6. RAMPHASTOS BYRON, Müll. Syst. Nat. Supp. p. 82 (1776).

Buceros albus, Gm. Syst. Nat. i. p. 361.

"Captus inter insulas Tinian et Pulotimoon, anseris magnitudine."

A white Toucan, the size of a Goose! I guess not.

7. RAMPHASTOS INDICUS, Miller, Cimelia Physica p. 102 (1796).

Mill. Cym. Phys. pl. 57.

"Ramphastos gula remigibus candaque nigris, genis pectoreque albis, abdomine femorisque luteis, vertice rubro-aurantio, uropygio phœniceo." Miller, as above.

Usually cited doubtfully as a synonyme for *R. Toco*, but the plate represents no species at present known, and has the appearance of having been drawn from a made-up or fictitious specimen, the head rather especially.

[Sept.